



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

### STATEMENT OF BASIS FOR ISSUANCE OF UNDERGROUND INJECTION CONTROL (UIC) MAJOR CLASS II AREA PERMIT MODIFICATION

**Permit Number:** MI-101-2R-A002

**Facility Name:** Bear Lake 26  
Waterflood Unit

Shell Western E & P, Inc. of Kalkaska, Michigan, has applied for a major modification to United States Environmental Protection Agency (USEPA) area permit #MI-101-2R-A002 for the Bear Lake 26 Waterflood Unit in Manistee County, Michigan. This permit was originally signed on June 17, 2002.

In accordance with the conditions set forth in Title 40 of the Code of Federal Regulations (40 CFR) §144.39, and §124.5(a), Shell Western E & P, Inc. has requested a major modification to area permit #MI-101-2R-A002. The following permit conditions are proposed for modification:

<u>Permit Condition</u>	<u>Modification</u>
Annulus Liquid Loss Monitoring	Change quarterly measurement of annulus liquid loss to semi-annual measurement.
Reporting Frequency	Change the monthly and quarterly reporting requirements to annual reporting of the weekly measurements made of injection pressure, annulus pressure, cumulative injected volume, and flow rate. In addition, annual reporting of injectate fluid chemistry and the semi-annual measurements made of annulus liquid loss is required.

In accordance with 40 CFR Section 124.5(c)(2), only the conditions proposed to be modified may be reopened. All other existing conditions of the permit remain in full force for the duration of the unmodified permit.

Review of the request for a major modification indicates that no significant environmental impact should result from the proposed permit modification. In accordance with the provisions of the Safe Drinking Water Act, as amended (42 U.S.C. 300f *et seq.*, commonly known as the SDWA) and implementing regulations promulgated by the USEPA at Parts 124, 144, 146, and 147 of the Code of Federal Regulations, the USEPA intends to issue a permit modification for the above-mentioned well.

**Issuance and Effective Date of Permit:** In accordance with 40 CFR §124.15, the permit will become effective immediately upon issuance if no public comments were received that requested a change in the draft permit. However, in the event that public comments are received and requested a change in the draft permit then the permit will become effective thirty (30) days after the date of issuance unless the permit is appealed. In accordance with 40 CFR §144.36(a), the permit will be in effect for the life of the facility, unless it is otherwise modified, revoked and reissued, or terminated as provided at 40 CFR §§144.39, 144.40 and 144.41. The permit will be reviewed by the USEPA at least once every five (5) years from its effective date for consistency with new or revised Federal regulations.

Questions, comments and requests for additional information or for a public hearing may be submitted in writing to the

contact person listed below or made verbally to Dana Rzeznik at (312) 353-6492 or [rzeznik.dana@epa.gov](mailto:rzeznik.dana@epa.gov) via the internet. The public comment period on this permitting action will close thirty (30) days after the date of the public notice. If the USEPA receives written comments indicative of public interest that warrants a hearing on this action, a public notice of a scheduled hearing will be published locally and mailed to interested parties.

To preserve your right to appeal any final permit decision that may be made in this matter under 40 CFR Part 124, you must either participate in the public hearing or send in written comments on the draft permit decision. The first appeal must be made to the Environmental Appeals Board; only after all agency review procedures have been exhausted may you file an action in the appropriate Circuit Court of Appeals for review.

**U.S. Environmental Protection Agency  
Region 5 (WU-16J)  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590**

**Attn: Lisa Perenchio, Chief  
Direct Implementation Section**

**DRAFT**

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**Lisa Perenchio, Chief  
Direct Implementation Section**



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REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)  
UNDERGROUND INJECTION CONTROL MAJOR PERMIT MODIFICATION: CLASS II

Permit Number: MI-101-2R-A002

Facility Name: Bear Lake 26  
Waterflood Unit

Pursuant to the provisions of the Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq., commonly known as the SDWA) and implementing regulations promulgated by the United States Environmental Protection Agency (USEPA) at Parts 124, 144, 146 and 147 of Title 40 of the Code of Federal Regulations (40 CFR), Shell Western E & P Inc. of Kalkaska, Michigan is authorized to operate two existing injection wells located in Michigan, Manistee County, in a permit area limited to that described in Part III(D) of this permit. Injection shall be limited to the A-1 Carbonate, A-2 Evaporite and Brown Niagaran Formations at depths between 4493 and 5034 feet, upon the express condition that the permittee meet the restrictions set forth herein. The names and locations of wells authorized under this permit and the map of the permit area are provided in Part III(D) of this permit. Injection shall not commence into any newly drilled or converted well until the operator has received authorization in accordance with Part I(E)(10) of this permit. Additional injection wells may be constructed and operated within the permit area provided that the permittee notifies the Director and all permit requirements are met.

The purpose of the injection is limited to enhanced oil recovery from production wells owned or operated by Shell Western E & P Inc.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective.

This permit is a major modification of an existing permit which was signed on June 17, 2002. This permit shall become effective on \_\_\_\_\_ and shall remain in full force and effect during the operating life of the field, unless this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 CFR §§144.39, 144.40 and 144.41. This permit shall also remain in effect upon delegation of primary enforcement responsibility to the State of Michigan, unless that State chooses to adopt this permit as a State permit. This permit will be reviewed at least every five (5) years from the effective date specified above.

Signed and dated: \_\_\_\_\_

DRAFT

\_\_\_\_\_  
Jo Lynn Traub  
Director, Water Division

## **PART I**

### **GENERAL PERMIT COMPLIANCE**

#### **A. EFFECT OF PERMIT**

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The underground injection activity, otherwise authorized by this permit or rule, shall not allow the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any Primary Drinking Water Regulation pursuant to 40 CFR Part 142 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit or otherwise authorized by permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Section 1431 of the Safe Drinking Water Act (SDWA), or any other law governing protection of public health or the environment.

#### **B. PERMIT ACTIONS**

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§144.39, 144.40, and 144.41. The filing of a request for a permit modification, revocation and reissuance, termination, or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

#### **C. SEVERABILITY**

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

#### **D. CONFIDENTIALITY**

In accordance with 40 CFR Part 2 and §144.5, any information submitted to the USEPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, USEPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

- (1) The name and address of the permittee; and,
- (2) Information which deals with the existence, absence or level of contaminants in drinking water.

**E. DUTIES AND REQUIREMENTS**

1. **Duty to Comply** - The permittee shall comply with all conditions of this permit, except to the extent and for the duration such non-compliance is authorized by an emergency permit pursuant to 40 CFR §144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance or modification.
2. **Penalties for Violations of Permit Conditions** - Any person who operates this well in violation of permit conditions is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions under the Resource Conservation and Recovery Act. Any person who willfully violates a permit condition is subject to criminal prosecution.
3. **Need to Halt or Reduce Activity not a Defense** - It shall not be a defense for a permittee in an enforcement action to state that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate** - The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
5. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.
6. **Duty to Provide Information** - The permittee shall furnish to the Director, within thirty (30) days, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required by this permit to be retained.
7. **Inspection and Entry** - The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:
  - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
  - b. Have access to and copy, at reasonable times, any records that must be retained under the conditions of this permit;
  - c. Inspect, at reasonable times, any facilities, equipment (including monitoring equipment), practices, or operations, regulated or required under this permit; and

- d. Sample or monitor the injected fluids, at reasonable times, for the purposes of assuring permit compliance, or as otherwise authorized by the SDWA, at any location.

8. **Records**

- a. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and copies of all records required by this permit, for a period of at least three (3) years from the date of the sample, measurement or report. The permittee shall also maintain records of all data required to complete this permit application and any supplemental information submitted under 40 CFR §§144.31 and 144.51. These periods may be extended by request of the Director at any time by written notice to the permittee.
- b. The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment in accordance with the plugging and abandonment plan, contained in Part III(B) of this permit. The owner or operator shall continue to retain the records after the three (3) year retention period unless he delivers the records to the Regional Administrator or obtains written approval from the Regional Administrator to discard the records.
- c. Records of monitoring information shall include:
  - (i) The date, exact place, and the time of sampling or measurements;
  - (ii) The individual(s) who performed the sampling or measurements;
  - (iii) A precise description of both sampling methodology and the handling of samples;
  - (iv) The date(s) analyses were performed;
  - (v) The individual(s) who performed the analyses;
  - (vi) The analytical techniques or methods used; and,
  - (vii) The results of such analyses.

9. **Notification Requirements**

- a. **Planned Changes** - The permittee shall notify and obtain the Director's approval at least thirty (30) days prior to any planned physical alterations or additions to the permitted facility, or changes in the injection fluids. Within ten (10) days prior to injection, an analysis of new injection fluids shall be submitted to the Director for approval in accordance with Parts II(B)(2) and II(B)(3) of this permit.

- b. **Anticipated Noncompliance** - The permittee shall give at least thirty (30) days advance notice to the Director for his/her approval of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- c. **Transfer of Permits** - This permit is not transferrable to any person except after notice is sent to the Director at least thirty (30) days prior to transfer and the requirements of 40 CFR §144.38 have been met. The Director may require modification or revocation of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.
- d. **Compliance Schedules** - Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted to the Director no later than thirty (30) days following each schedule date.
- e. **Twenty-Four Hour Reporting** - The permittee shall report to the Director any noncompliance which may endanger health or the environment in accordance with part I(E)(17)(g). This information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances.
- f. **Five (5) Day Written Reporting of Noncompliance** - For any noncompliance identified under Part I(E)(9)(e), or any other noncompliance identified pertaining to this permit, the permittee shall provide a written submission as soon as possible, but no later than five (5) calendar days from the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
- g. **Other Information** - If or when the permittee becomes aware that the permittee failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit such facts or corrected information in accordance with 40 CFR §144.51(l)(8).
- h. **Report on Permit Review** - Within thirty (30) days of receipt of the final issued permit, the permittee shall report to the Director that the permittee has read and is personally familiar with all terms and conditions of this permit.
- 10. **Commencing Injection** - The permittee shall not commence injection into any newly drilled or converted well until:
  - a. Formation data and injection fluid analysis have been submitted in accordance with Parts II(A)(6) and II(B)(2), respectively;
  - b. A report on any logs and tests required under Parts II(A)(5) of this permit has been submitted.
  - c. Mechanical integrity of the well has been demonstrated in accordance with Part I(E)(17);

- d. Any required corrective action has been performed in accordance with Parts I(E)(16) and III(C); and,
  - e. Construction is complete and the permittee has submitted to the Director, by certified mail with return receipt requested, a notice of completion of construction using EPA Form 7520-10, a plugging and abandonment plan, a copy of the State permit and either:
    - (i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or,
    - (ii) The permittee has not received, within thirteen (13) days of the date of the Director's receipt of the report required above, notice from the Director of his or her intent to inspect or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.
11. **Signatory Requirements** - All reports or other information requested by the Director shall be signed and certified according to 40 CFR §144.32.
12. **Notice of Plugging and Abandonment** - The permittee shall notify the Director at least forty-five (45) days before conversion or abandonment of the well.
13. **Plugging and Abandonment** - The permittee shall plug and abandon the well as provided in the plugging and abandonment plan contained in Part III(B) of this permit. Plugging shall occur as soon as practicable after operation ceases but not later than two (2) years thereafter. During the period of non-operation, the well must be tested to ensure that it maintains mechanical integrity, unless the permittee fulfills the other requirements under 40 CFR §144.52(a)(6), prior to expiration of the two (2) year period. The permittee shall notify the Director of plugging and abandonment in accordance with the reporting procedures in Part I(E)(12) of this permit.
14. **Financial Responsibility** - The permittee shall maintain financial responsibility and resources to plug and abandon the underground injection well in accordance with 40 CFR §144.52(a)(7) as provided in Attachment R of the administrative record corresponding to this permit action which is hereby incorporated by reference as if it appeared fully set forth herein. The permittee shall not substitute an alternative demonstration of financial responsibility from that which the Director has approved, unless the permittee has previously submitted evidence of that alternative demonstration to the Director and the Director has notified the permittee in writing that the alternative demonstration of financial responsibility is acceptable. The financial responsibility mechanism shall be updated periodically, upon request of the Director, except when Financial Statement Coverage is used as the financial mechanism, this coverage must be updated on an annual basis.
15. **Insolvency**
- a. In the event of the bankruptcy of the trustee or issuing institution of the financial mechanism, or a



suspension or revocation of the authority of the trustee institution to act as trustee or the institution issuing the financial mechanism to issue such an instrument, the permittee must submit an alternative demonstration of financial responsibility acceptable to the Director within sixty (60) days after such event. Failure to do so will result in the termination of this permit pursuant to 40 CFR §144.40(a)(1)

- b. An owner or operator must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he/she is named as debtor, as required under the terms of the guarantee.

16. **Corrective Action**

The permittee shall shut in the injection well whenever he/she or the USEPA determines that operation thereof may be causing upward fluid migration through the well bore of any improperly plugged or unplugged well in the area of review and shall take such steps as he/she can to properly plug the offending well(s). Any operation of the well which may cause upward fluid migration from an improperly plugged or unplugged well will be considered a violation of this permit. If the permittee or the USEPA determines that the permitted well is not in compliance with 40 CFR §146.8, the permittee will immediately shut in the well until such time as appropriate repairs can be effected and written approval to resume injection is given by the Director. In addition, the permittee shall not commence injection until any and all corrective action has been taken in accordance with any plan contained in Part III(C) of this permit and the requirements in Part I(E)(10) of this permit have been met.

17. **Mechanical Integrity**

- a. The permittee must establish and shall maintain mechanical integrity of any well covered under this permit in accordance with 40 CFR §146.8. Injection operations are prohibited for any newly drilled or converted well covered under this permit until the permittee demonstrates that the well has mechanical integrity in accordance with 40 CFR §146.8 and the permittee has received written notice from the Director that such a demonstration is satisfactory.
- b. A demonstration of mechanical integrity, in accordance with 40 CFR §146.8, shall be performed for each well covered under this permit every five (5) years from the date of the last approved demonstration. The permittee shall notify the Director of his/her intent to demonstrate mechanical integrity at least thirty (30) days prior to such demonstration.
- c. The permittee shall demonstrate the mechanical integrity of the well by pressure testing whenever:
  - (i) the tubing is removed from the well or replaced;
  - (ii) the packer is reset; or,

- (iii) a loss of mechanical integrity occurs. Operation shall cease whenever one of the aforementioned conditions occurs and not resume until the Director gives approval to recommence injection.
  - d. The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.
  - e. The permittee shall cause all gauges used in mechanical integrity demonstrations to be calibrated prior to the demonstration.
  - f. The permittee shall cease injection if a loss of mechanical integrity occurs or is discovered during a test, or a loss of mechanical integrity as defined by 40 CFR §146.8 becomes evident during operation. Operations shall not be resumed until the Director gives approval to recommence injection.
  - g. The permittee shall notify the Director of the loss of mechanical integrity, in accordance with the reporting procedures in Parts II(B)(3)(b), and I(E)(9)(e) and (f) of this permit.
  - h. The permittee shall report the result of a satisfactory mechanical integrity demonstration as provided in Part II(B)(3)(b) of this permit.
18. **Restriction on Injected Substances** - The permittee shall be restricted to the injection of fluids brought to the surface in connection with conventional oil or natural gas production or those fluids used in the enhancement of oil and gas production as specified in 40 CFR §146.5(b). Further, no fluids other than those from sources noted in the administrative record for this permit and approved by the Director shall be injected.
19. **Cumulative Effect of Injection** - If the Director determines that the cumulative effects of injection are unacceptable, the permit may be modified under 40 CFR §144.39.
20. **Construction, Conversion, Operation and Plugging Abandonment within the Permit Area** - The permittee may construct, operate, convert, or plug and abandon wells within the permit area, provided that all permit conditions are met and:
- a. The permittee notifies the Director at such times as specified in the permit, and
  - b. Any additional wells are:
    - (i) Described and identified by location;
    - (ii) Located within the same field, facility site, reservoir, project, or similar unit in the same State, and injecting in the same formation; and,
    - (iii) Operated by the permittee

**PART II****WELL SPECIFIC CONDITIONS FOR UNDERGROUND INJECTION CONTROL PERMITS****A. CONSTRUCTION REQUIREMENTS**

1. **Siting** - Notwithstanding any other provision of this permit, injection wells shall inject only into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of the review.
2. **Casing and Cementing** - Injection wells shall be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement to be used in the construction of the well shall be as contained in Attachments L and M of the administrative record corresponding to this permit action which are hereby incorporated by reference as if they appeared fully set forth herein.
3. **Tubing and Packer Specifications** - Injection shall only take place through tubing with a packer set in the long string casing within or below the nearest cemented and impermeable confining system immediately above the injection zone. Tubing and packer specifications shall be as represented in engineering drawings contained in Attachments L and M of the administrative record corresponding to this permit action which are hereby incorporated by reference as if they appeared fully set forth herein. Any proposed changes shall be submitted by the permittee in accordance with Part I(E)(9)(a) and (b) of this permit.
4. **Wellhead Specifications** - For every injection well, the operator shall provide a female fitting, with a cutoff valve, to the tubing at the wellhead, so that the amount of injection pressure being used may be measured by a representative of the USEPA by attaching a gauge having a male fitting.
5. **Logs and Tests** - Upon approval by the Director of the surface casing and cementation records for all newly drilled or converted wells covered under this permit, any logs and tests noted in Part III of this permit shall be performed, unless already provided. Prior to commencement of injection, the permittee shall submit to the Director for approval a descriptive report prepared by a knowledgeable log analyst interpreting the results of those logs and tests along with the notice of completion required in Part I(E)(10) of this permit.
6. **Formation Data** - If not already provided, the permittee shall determine or calculate the following information concerning the injection formation and submit it to the Director for review and approval, prior to operation:
  - a. Formation fluid pressure;
  - b. Fracture pressure; and,
  - c. Physical and chemical characteristics of the formation.

7. **Prohibition of Unauthorized Injection** - Any underground injection, except as authorized by permit or rule issued under the UIC program, is prohibited. The construction, including drilling, of any well required to have a permit is prohibited until the permit has been issued.

## **B. OPERATING, MONITORING AND REPORTING REQUIREMENTS**

### **1. Operating Requirements**

- a. Beginning on the effective date of this permit, the permittee is authorized to operate the injection wells, subject to the limitations and monitoring requirements set forth herein. The injection pressure and injected fluid shall be limited and monitored as specified in Parts I(E)(18) and III(A) of this permit.
- b. Injection at a pressure which initiates fractures in the confining zone or causes the movement of injection or formation fluids into or between underground sources of drinking water is prohibited.
- c. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.
- d. The annulus between the tubing and the long string casing of each well shall be filled with a liquid designed to inhibit corrosion. The annulus liquid will be monitored and volume changes reported in accordance with Parts II(B)(2)(d) and II(B)(3)(a) of this permit. Any specific annulus requirements are contained in Part III(A) of this permit.

### **2. Monitoring Requirements**

- a. Samples and measurements, taken for the purpose of monitoring as required in Part II(B)(3), shall be representative of the monitored activity. Grab samples shall be used to obtain a representative sample of the fluid to be analyzed. Part III(A) of this permit describes the sampling location and required parameters for injection fluid analysis. The permittee shall identify the types of tests and methods used to generate the monitoring data. The monitoring program shall conform to the one described in Part III(A) of this permit.
- b. **Analytical Methods** - Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR §136.3 or in Appendix III of 40 CFR Part 261 or by other methods that have been approved by the Director.
- c. **Injection Fluid Analysis** - The nature of the injection fluids shall be monitored as specified in Part III(A) of this permit. An initial analysis of the injection fluid is contained in Attachment H of the administrative record corresponding to this permit action which is hereby incorporated by reference as if it appeared fully set forth herein. The Director may, by written notice require the permittee to sample and analyze the injection fluid at any time.

- d. **Injection Pressure, Annulus Pressure, Annulus Liquid Loss, Flow Rate and Cumulative Volume** - Injection pressure, annulus pressure, flow rate and cumulative volume shall be recorded at least weekly and shall be reported annually as specified in Part III(A) of this permit. Manifold monitoring may be used to monitor flow rate and volume, provided that such monitoring is comparable to individual well monitoring. Annulus liquid loss for each well shall be recorded at least semi-annually and shall be reported in accordance with the provisions of Part II(B)(3)(a), as the volume of liquid added to the annulus to keep it filled in accordance with Part II(B)(1)(d). All gauges used in monitoring shall be calibrated in accordance with Part I(E)(17)(e) of this permit.
- e. **Monitoring of Fresh Water** - Prior to commencement of injection, the permittee shall provide to the Director, a baseline fresh water analysis for total hydrocarbon and total dissolved solids content taken from a fresh water well in the permit area, provided that the permittee operates such a well. If such a well exists, but is not operated by the permittee, the permittee shall make a reasonable attempt to obtain a sample for analysis. Subsequent fresh water analyses may be required of the permittee at any time, should injection problems be suspected.
3. **Reporting Requirements** - Copies of the monitoring results and all other reports shall be submitted to the Director at the following address:

**U.S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590  
Attn: UIC Branch, Direct Implementation (WU-16J)**

- a. **Annual Reports** - Monitoring results obtained during each week shall be recorded on a form which has been signed and certified according to 40 CFR §144.32. Reports shall be submitted at the end of each anniversary year and shall be postmarked no later than the 10<sup>th</sup> day of the first month of the following year. For all new well(s), the first report shall be sent no later than the 10<sup>th</sup> day of the month following the month in which injection commences, and for existing well(s), the first report shall be sent no later than the 10<sup>th</sup> day of the month following the month of the final issued permit. Reports shall include the weekly measurements of injection pressure, annulus pressure, flow rate and cumulative volume as required in Parts II(B)(2)(d) and III(A) of this permit. Reports shall also contain the semi-annual measurements of annulus liquid fluid additions or subtractions as required in Parts II(B)(2)(d) and III(A) of this permit. Reports shall also contain the monitoring results obtained each year during measurement of injected fluid characteristics as required in parts II(B)(2)(c) and III(A) of this permit.
- b. **Reports on Well Tests, Workovers, and Plugging and Abandonment** - The applicant shall provide the Director with the following reports and test results within sixty (60) days of completion of the activity:

- (i) Mechanical integrity tests, except tests which the well fails in which case twenty-four (24) hour reporting under Part I(9)(e) is applicable;
- (ii) Logging or other test data;
- (iii) Well workovers (using EPA Form 7520-12); and
- (iv) Plugging and abandonment.

**PART III****SPECIAL CONDITIONS**

These special conditions include, but are not limited to plans for maintaining correct operating procedures, monitoring conditions and reporting, as required by 40 CFR Parts 144 and 146. These plans are described in detail in the permittee's application for a permit, and the permittee is required to adhere to these plans as approved by the Director, as follows:

- A. OPERATING, MONITORING AND REPORTING REQUIREMENTS (ATTACHED)
- B. PLUGGING AND ABANDONMENT PLAN (ATTACHED)
- C. CORRECTIVE ACTION PLAN (ATTACHED)
- D. ADDITIONAL REQUIREMENTS (ATTACHED)

**OPERATING, MONITORING AND REPORTING REQUIREMENTS**

<b><u>LIMITATION</u></b>	<b><u>MINIMUM</u></b>		<b><u>MINIMUM</u></b>
	<b><u>MONITORING</u></b>	<b><u>REPORTING</u></b>	<b><u>REPORTING</u></b>
<b><u>Characteristic</u></b>	<b><u>Freq.</u></b>	<b><u>Type</u></b>	<b><u>Freq.</u></b>
*Injection Pressure 1050 psig (MAXIMUM)	weekly		annually
Annulus Pressure	weekly		annually
Flow Rate	weekly		annually
Cumulative Volume	weekly		annually
**Annulus Liquid Loss	semi-annually		annually
***Chemical Composition of Injected Fluid	annually	grab	annually

**SAMPLING LOCATION:** samples will be obtained from either at the pump discharge, the tank immediately before the injection pump or at the well head.

\*The limitation on wellhead pressure serves to prevent confining-formation fracturing. This limitation was calculated using the following formula:  $[0.8 \text{ psi/ft} - (0.433 \text{ psi/ft})(\text{specific gravity})] \times \text{depth} - 14.7 \text{ psi}$ . The maximum injection pressure is dependent upon depth, and the specific gravity of the injected fluid. The A1 Carbonate at 4493 feet was used as the depth and a specific gravity of 1.30 was used for the injected fluid.

\*\*Measurements of annulus liquid loss and the additions or subtractions necessary to keep the annulus filled shall be made at least twice per year, with no two measurements, additions or subtractions made at intervals greater than six (6) months apart.

\*\*\*Chemical composition analysis shall include, but not be limited to the following: Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total dissolved Solids, pH, Resistivity (ohm-meters @ 75 F), and Specific Gravity



**CORRECTIVE ACTION PLAN**

No corrective action is required at this time.



United States  
Environmental Protection  
Agency, Region 5

77 West Jackson Boulevard  
Chicago, Illinois 60604-3590  
Mail Code WU-16J

Water Division

Underground Injection Control Branch

### **PURPOSE OF PUBLIC NOTICE**

FEBRUARY 12, 2004

The purpose of this notice is to solicit written comments on the proposal by the Region 5 office of the United States Environmental Protection Agency (USEPA) to modify two existing area permits issued to Shell Western Exploration and Production, Incorporated (SWEPI), of Houston, Texas. The modifications will revise the monitoring and reporting program for each of the two Class II area permits listed in the table below. Comments are limited to the proposed modifications only. The remaining unmodified aspects of the original permits are not open to modification at this time. The proposed modifications are described in detail below under the heading "MODIFICATIONS".

### **REGULATORY BACKGROUND**

The Safe Drinking Water Act (SDWA) requires the USEPA to regulate underground injection of fluids through wells to assure that the quality of underground sources of drinking water is protected. This is done in part by issuing permits to owners/operators of underground injection wells. The USEPA is administering the permit program pursuant to regulations at 40 C.F.R. Part 147. Region 5 is proposing to modify the permits pursuant to 40 C.F.R. §144.39 under the procedures set forth in 40 C.F.R. §124.5.

In August 2002, SWEPI sought approval from the USEPA to modify two of their Class II area permits that they operated in Michigan. After review of the data submitted and existing Agency records, the USEPA is now proposing to grant several modifications to the two existing area permits listed below.

### **MODIFICATIONS**

In accordance with the conditions set forth in 40 CFR §144.39(1) and 124.5(a), SWEPI has requested major permit modification from the USEPA.

#### **Permit Condition**

#### **Modification**

Annulus Liquid Loss  
Monitoring

Change quarterly measurement of annulus liquid loss to semi-annual measurement.

Reporting Frequency

Change the monthly and quarterly reporting requirements to annual reporting of the weekly measurements made of injection pressure, annulus pressure, cumulative injected volume, and flow rate. In addition, annual reporting of injectate fluid chemistry and the semi-annual measurements made of annulus liquid loss is required.

A table showing the exact permits which are the subject of the proposed modifications and the modified provisions of each permit is shown below. It is only the proposed modifications that are open for comment and appeal. The comment and appeal process is described below, under "APPEAL" and "PUBLIC COMMENTS".

## **APPEAL**

To preserve your right to appeal any final Agency decision that may be made in this matter under 40 C.F.R. Part 124 you must either participate in a public hearing or send in written comments on the draft Agency decision. If you wish to request an administrative review, you must submit such a request by regular mail to the United States Environmental Protection Agency, Clerk of the Board, Environmental Appeals Board (MC 1103B), Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460-0001. Pursuant to 40 C.F.R. §124.19, a valid appeal must include a statement of the reason(s) supporting the review, including a demonstration that any issues being appealed were raised during the public comment period (including any public hearing on the issues) to the extent required by regulations and, when appropriate, a showing that the permit condition in question is based on either, (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

## **PUBLIC COMMENTS**

The public comment period on this permitting action opens on **February 12, 2004**, and will close on **March 13, 2004**. A public hearing may be scheduled if the USEPA receives written comments of substantial public interest that warrants a public hearing on this action. If a public hearing is scheduled, there will be at least 30 days advance notice given, and the public comment period will be extended to include the date of hearing. Written comments **on the modifications only** will be accepted during the public comment period at the address listed below. Any final Agency action on the proposed modifications will be limited to the modified permit conditions only. The existing permits will not be deemed reissued or superseded except as to the modifications. All materials submitted by the applicant and other governmental agencies are part of the administrative record and are available for review between 9 a.m. and 4 p.m. at the address listed below. It is recommended that you telephone Dana Rzeznik at (312) 353-6492, before visiting the Region 5 office, or for information on the notice:

U.S. Environmental Protection Agency, Region 5  
DI Section (Attention: Lisa Perenchio, Chief)  
77 West Jackson Boulevard (WU-16J)  
Chicago, Illinois 60604-3590

## **REPOSITORIES:**

Copies of the draft modified permits are available for viewing at libraries in the two counties in which the SWEPI injection wells are located. Below are listed the addresses and hours of business for each library shown by county:

Kalkaska:	Kalkaska County Library, 47 South Cedar, Kalkaska, Michigan 49646; Tuesday 10 a.m. to 5 p.m., Wednesday - Thursday 10 a.m. to 6 p.m., Friday 10 a.m. to 5 p.m., Saturday 10 a.m. to 8:30 p.m.
Manistee:	Manistee County Library, 95 Maple Street, Manistee, Michigan 49660; Tuesday - Wednesday 10 a.m. to 8:30 p.m., Thursday - Friday 10 a.m. to 5 p.m., Saturday 9 a.m. to 2 p.m.

**Shell Western E&P, Inc. Michigan Permit Modifications**

Permit #	Well Name	Location (County)	Annulus Liquid Loss Monitoring <sup>1</sup>	Reporting Frequency
MI-079-2R-A001	State Coldsprings #3-29 HD	Kalkaska	6 months	Annual
MI-079-2R-A001	Simpson L #2-29A HD	Kalkaska	6 months	Annual
MI-101-2R-A002	Hilliard et al 2-26 WIW	Manistee	6 months	Annual
MI-101-2R-A002	Sedlar Johnson 3-26 WIW	Manistee	6 months	Annual

Endnotes:

1. The proposed frequency for monitoring annulus liquid loss is once every six months.